

**U.S.S.N. 09/479,467**  
**STERNBERG *et al.***  
**AMENDMENT AFTER FINAL**

Please replace claims 9, 27, 28, 29, 31, 32, 42, 76 and 77 with amended claims 9, 27, 28, 29, 31, 32, 42, 76 and 77 as follows:

9. (Amended twice) An isolated gene, comprising the nucleic acid molecule of claim 1 that encodes a *Caenorhabditis elegans* LOV-1 protein and that comprises the sequence of amino acids set forth in SEQ ID No. 4.

27. (Amended twice) A transgenic *Caenorhabditis elegans* species nematode, comprising the vector of claim 26.

28. (Amended) The transgenic nematode of claim 27, wherein the vector is maintained extrachromosomally.

29. (Amended twice) The transgenic nematode of claim 27, wherein the vector or a gene-encoding portion is integrated into the *C. elegans* genome.

31. (Amended twice) The transgenic nematode of claim 27, wherein:  
the nucleic acid molecule encodes a mutant *LOV-1* protein;  
a nematode expressing the mutant protein exhibits defective mating behavior; and

a nematode that expresses such defect exhibits one or both of an altered location of vulva (Lov) and response phenotype.

32. (Amended twice) The transgenic nematode of claim 30, wherein:  
the nucleic acid molecule encodes a mutant *LOV-1* protein;  
a nematode expressing the mutant protein exhibits defective mating behavior; and

a nematode that expresses such defect exhibits one or both of an altered location of vulva (Lov) and response phenotype.

42. (Amended twice) A transgenic *Caenorhabditis elegans* nematode, comprising the nucleic acid molecule of claim 15.

76. (Amended twice) A method for identifying regulators and factors necessary for synthesis and transport of *LOV-1* protein, comprising: